Electronic Supplementary Material (ESI) for Journal of Materials Chemistry C.

Supporting Information

Mixed-Dimensional WS_2/GaSb Heterojunction for High-performance p-n Diode and Junction Field-Effect Transistor

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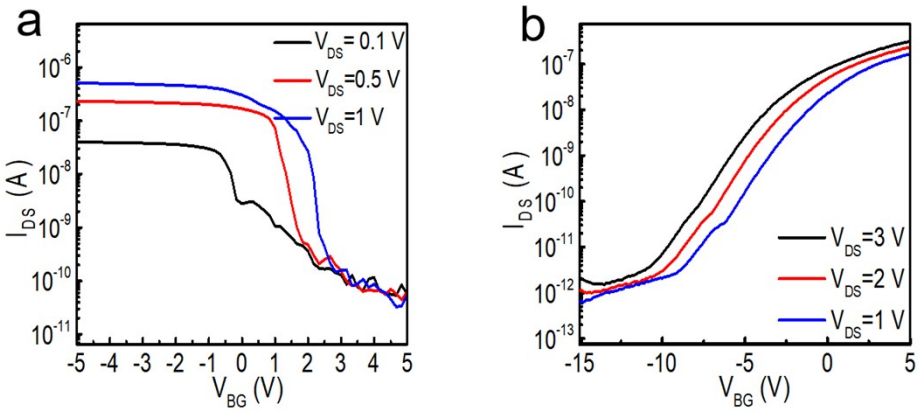

Fig. S1 Drain current-gate voltage (I_{DS}-V_{GS}) transfer curves of bottom-gate FETs with (a) GaSb nanowire and (b) WS_2 multilayer flakes on 285 nm-thick SiO_2 gate insulator/Si universal gate under different V_{DS}.

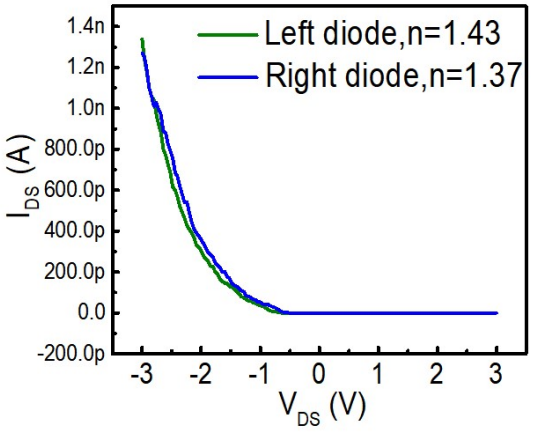

Fig. S2 Linear scale current-voltage (I_{DS}-V_{DS}) curves of our p-n diodes formed by WS_2 multilayer flakes on GaSb nanowire.

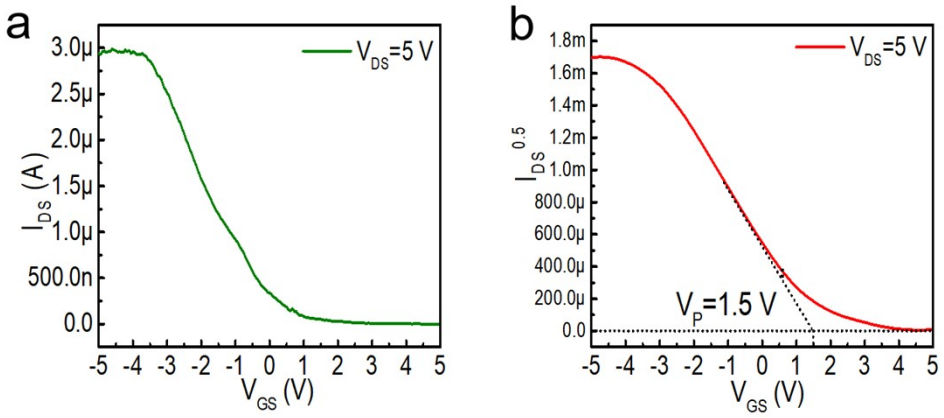

Fig. S3 (a) I_{DS}-V_{GS} curve of WS_2/GaSb JFET at V_{DS}=5 V. (b) $\sqrt{I_{DS}}$-V_{GS} curve of WS_2/GaSb JFET at V_{DS}=5 V. The black dashed line linearly fits the curve of $\sqrt{I_{DS}}$-V_{GS}, and its intersection with X axis gives the V_P (1.5 V).